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★ MAR 26 1935 ★

HOW MECHANICAL PROGRESS IS AFFECTING LAND USE

A radio talk by S. H. McCrory, Bureau of Agricultural Engineering broadcast in the Conservation Day program, National Farm & Home Hour, Friday, March 8, 1935, by NBC and 60 associated radio stations.

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Persons familiar with our agriculture often refer to a particular area or group of States in a manner indicating the kind of crops grown. When the corn, cotton, or wheat belt is mentioned it is natural for us to think of these areas as being better suited for the production of the crop in question than for any other. This is often true, but the boundaries of these areas may change from year to year.

All of our wheat was at one time produced east of the Mississippi River. The area in which cotton is produced in large quantities has also changed. Some changes have come about rapidly, whereas others have been gradual. But the successful production of crops in a new area has nearly always depended in part upon mechanical progress. Early developments such as that of the steel plow, the reaper, binder and header greatly influenced land utilization in the Great Lakes and Great Plains areas. Drainage and irrigation have also been important factors in making available for crops some of the most productive land in the country.

Wheat lands considered as submarginal 30 years ago have become low-cost producers, due largely to the introduction of tractors and combines. Between 1914 and 1929 there was a decline in the wheat acreage of Ohio, Indiana, Illinois, Missouri, Minnesota, New York, Pennsylvania, Maryland, and Virginia, whereas the acreage of this crop in Texas, Oklahoma, Kansas, Colorado, North Dakota, and Montana increased.

During the same period the cotton acreage of South Carolina, Georgia, and Alabama shrank, while there was an expansion of cotton acreage in Texas and Oklahoma. In this case, also, lands formerly regarded as superior were displaced by lands which had been considered submarginal. The yield per acre of Northwest Texas and Oklahoma was comparatively low, but the unit cost was more than proportionately reduced by the use of extensive machine methods. In humid regions also the margin of cultivation is undergoing some change as a result of the greater use of mechanical power. Certain soils which bake badly if plowed under unfavorable moisture conditions are rendered much more available to agriculture if by use of power machinery plowing can be pushed forward rapidly when conditions are most favorable. With power farming, work can be carried on twenty-four hours a day and more rapidly than with draft animals, if necessary. American farmers have now available for their use the best farm machinery in the history of the world.

The first influence of agricultural mechanization was to stimulate an increase in size of farms, and the trend in design of machinery was toward larger types. Many observers believed the direction of our economic evolution would be toward large farm units of the corporate type. However, mechanical invention is rapidly adapting the various types of mechanical

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equipment to the needs of the small farmer. The advent of the one-plow tractor adapted to multiple uses and the small combine harvester have already caused a tremendous increase in the amount of mechanical power used on small-sized farms. This development has scarcely begun and doubtless will enable farmers in the East and South to compete with large scale operators in the West.

Refrigeration and rapid transportation of perishable products by train and truck have made possible the production of fruits and vegetables in regions far removed from the principal markets. The growing of such crops has likewise been stimulated near large industrial centers by sales to motorists from roadside markets.

There is also a distinct tendency toward quality production, which is being stimulated partly by access to a more discriminating demand, and also by such mechanical developments as sprayers and dusters; fruit washers and graders; grain dryers and cleaners; fertilizer spreaders and distributors; cotton and hay dryers; side delivery rakes; and vegetable washers. The food value of crops for livestock has been made more usable by improved hay tools, feed grinders and ensilage cutters. Higher quality in orchard and vegetable crops has been made possible in various sections by the use of pumping equipment for surface and overhead irrigation; and better quality of dairy products at lower costs by mechanical milkers, cream separators, utensil sterilizers and refrigeration. Mechanical brooders, incubators, refrigerators, and candlers are some of the outstanding items of equipment developed for improving the quality of decreasing the costs of poultry products.

The agricultural map of our country is constantly changing and many such changes, especially during recent years, have been due in large measure to developments in mechanical equipment.